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# SYSTEMS OPERATIONS MARKET WESTERN EUROPE

## 1990-1995

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Piccadilly House, 33/37 Regent Street, London SW1Y 4NF, England (071) 493 9335

Researched by
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33/37 Regent Street,
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England

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**The Systems Operations Market—
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# Abstract

The systems operations market, often referred to as facilities management, is defined by INPUT as the provision of those services involved in the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in two distinct ways:

- Professional services, where the vendor provides only the personnel to run the system
- Processing services, where the vendor provides equipment and (optionally) facilities, as well as the personnel

This report provides market analyses and five-year forecasts for the Western European systems operations market. Individual assessments for each country market are included, except for Greece, Ireland and Portugal, which are treated as a group. The report also contains lists of leading vendors in each country market for systems operations.



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# Introduction

# Introduction

## A Scope and Objectives

Systems operations (facilities management) is a concept of some 20 years' standing, originating in the U.S. in the late 1960s. The U.S. is now the most developed market in the world for this delivery mode, accounting for approximately two-thirds of the world market. Japan is also a significant market, accounting for about one-fifth of the total. Europe has remained relatively undeveloped and only accounts for 9% of the world market.

Exhibit I-1 illustrates the position of systems operations within the overall information services market. The systems operations market is divided into two subsectors: processing services, where the user organisation's information systems applications are performed on vendor-owned equipment; and professional services, where the vendor provides the staff for systems operations services on client-owned equipment.

The objective of this report is to provide market analysis and five-year forecasts for the Western European systems operations market. The report provides an overall assessment of the Western European market and individual forecasts for each country market. Greece, Ireland and Portugal are treated as a group. The leading systems operations vendors in each country are identified.


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EXHIBIT I-1

## Information Services Industry Structure—1990




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## B Methodology

The research that contributed to this study was derived from two main sources:

- A series of interviews with systems operations vendors in Europe
- INPUT's continuous analysis of the computer software and services market, which includes interviews with both vendors and users

Additionally, INPUT's extensive library and database of information relating to the software and services industry were utilised.

## C Report Structure

The remaining chapters of this report are structured as follows:

- Chapter II is an executive overview summarising the salient points of the report.
- Chapter III provides a description of the Western European market as a whole and contains the economic and exchange rate assumptions used in formulating the market forecasts.
- Chapter IV contains the market analysis, forecasts and leading vendor assessments for each individual country market.
- The appendixes to the report contain detailed databases of each country market forecast in local currency and in ECUs, and a reconciliation of the differences between this forecast and previous INPUT forecasts for the systems operations market.


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# Executive Overview

# Executive Overview

## A Systems Operations—A Pan-European Opportunity

Historically, systems operations has been considered two niche markets within the processing and professional services sectors. The increasing complexity and cost of information systems is now creating considerable demand for systems operations, estimated by INPUT to be growing at 20% per annum and forecast to exceed $2.5 billion by 1995. The market is dominated by national firms serving their own local markets. However, the increasing capital needs for facilities and for development of support infrastructure are now being met by multinational companies that can operate on a pan-European basis.

Throughout the 1980s, the market for computing software and services expanded at a higher rate than for computer equipment, reflecting the additional support needs of in-house IS (information system) departments. These needs included software products, systems and applications, and staffing services for systems analysts and programmers. However, users of IS have typically managed and retained responsibility for all the development and operation of their computer-based applications.

As information systems have continued to become more complex, and as the costs of developing and operating them have grown, users have begun to turn to external sources to assist in handling their management. Thus has emerged a sector of the market identified by INPUT as system management services. As indicated in Exhibit II-1, this opportunity is composed of two broad areas of activity: supporting a client's operational needs (systems operations services), and supporting a client's development needs (systems integration services). The increased willingness on the part of clients to contract management responsibility to information services vendors is a trend often referred to as "outsourcing".


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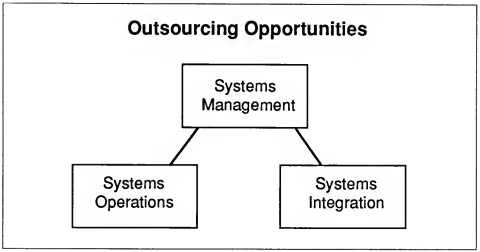
EXHIBIT II-1




Systems management services are differentiated from other types of information services by the specific management responsibility that the vendor holds for the service activity. This report is concerned only with systems operations services.

The systems operation market, often referred to as facilities management, is defined by INPUT as the provision of services involved in the operation and management of all or a significant part of a user's information systems function under a long-term contract. These services can be provided in either of two distinct submodes:

- Professional services, where the vendor provides only the personnel to run the system
- Processing services, where the vendor provides equipment and (optionally) facilities as well as personnel

The capital-intensive nature of systems operations—either to put support infrastructure in place or to acquire equipment and facilities from users—will lead to a market restructuring that will favour vendors big enough to operate on a pan-European basis. Within the leading group of vendors in Western Europe, only EDS and IBM operate on this scale; most other vendors' operations are limited to their own national markets.

## B

## The Western European Market

Exhibit II-2 shows INPUT's analysis and forecast for the Western European systems operations market. It can be seen that the majority of the market (80%) is in the processing services subsector, in which service is performed using vendor-owned equipment.


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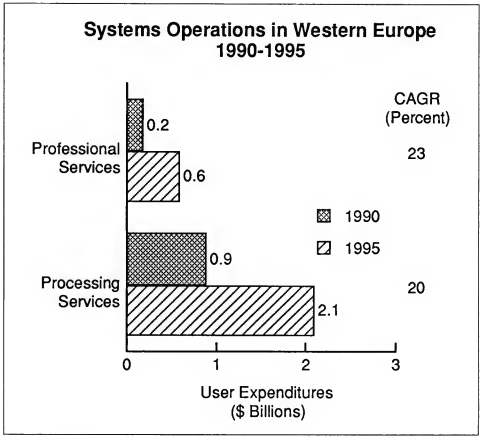
EXHIBIT II-2




Processing services systems operations business is often gained when clients sell their information systems assets to the vendor and hand over complete management responsibility for the running of the system to the systems operation contractor. INPUT expects this part of the market to grow at a slightly slower rate than that for professional services systems operations. This is because the professional services sector will be easier to penetrate through the adjacent markets of systems software support, application systems maintenance and other associated markets. The development of these professional services does not require the transfer of IS assets to a vendor, an action that meets with considerable resistance in Western Europe, and that users do not take unless under economic duress or, in the government sector, forced by policy decisions.

Opportunities for systems operations contracts can also be found in large companies that are undergoing major change, either in their structure or in their use of technology. Currently, European organisations are undergoing unprecedented change in both areas.

Not only the level of costs, but the control of costs can be a significant advantage of a systems operations contract. Some companies run their in-house information systems departments as cost centres, or even profit centres, but there are significant difficulties in creating the costed service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concept internally. Some systems operations vendors therefore pay much attention to this aspect of the service, and supply clients with a set of tools that gives them a greater sense of control of their computer operations.

Market assessments have to be made very carefully. For vendors, it is important to present a proven track record in order to win systems operations contracts. There is thus a tendency for vendors to include other revenues, such as those for processing services and professional services, with revenues for systems operations. This is justifiable from the standpoint that processing and professional services both represent relevant skills required for systems operations and may be organised internally in one business unit. However, it does underline the need for care in assessing the user expenditures that can be categorised within INPUT's market definition.

## C Systems Operations Country Markets

France and the United Kingdom are the two largest country markets in Europe for systems operations: between them they account for over 56% of the total market, as shown in Exhibit II-3. Despite Germany's importance in terms of overall software and services, the systems operations market there is relatively small. Germany is recognised by vendors as a difficult market. A few vendors have been implementing systems operations contracts with little or no publicity or competition. However, more vendors are starting to emerge in Germany, such as IBM, Digital Equipment and Daimler-Benz with its newly formed subsidiary, Debis Systemhaus. The particular reluctance of German companies to adopt service solutions is likely to continue to impede the German sector from reaching its potential relative to the overall size of its economy.

EXHIBIT II-3

**Comparative Regional Market Sizes—Europe, 1990**

| Region | U.S. $ Millions | Market Share (Percent) |
|---|---|---|
| United Kingdom | 300 | 28 |
| France | 300 | 28 |
| Italy | 150 | 14 |
| Scandinavia & Finland | 85 | 8 |
| Benelux | 85 | 8 |
| Germany | 75 | 7 |
| Spain | 30 | 3 |
| Switzerland & Austria | 25 | 2 |
| Rest of Europe | 7 | 1 |
| Total Europe (rounded) | 1,060 | 100 |


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In contrast, Italy is a relatively significant country market for systems operations and is some way ahead of all the remaining country markets. This situation is largely due to the activities of Finsiel, which was specifically set up for legal reasons to handle the information systems needs of Italian government departments.

## D Industry Market Opportunities

Exhibit II-4 shows the leading industry sectors of the Western European systems operations market. The next largest sector to local government is banking and finance, at just under 6% market share, which emphasises the dominant role of the manufacturing and governments sectors to the systems operations market.

EXHIBIT II-4

**Industry Markets**
**Systems Operations, Western Europe**

| Industry Sector | 1989 Market ($ Millions) | Percent of Total |
|---|---|---|
| Process Manufacturing | 230 | 22 |
| National Government | 190 | 18 |
| Discrete Manufacturing | 180 | 17 |
| Local Government | 140 | 13 |

The importance of the government sector derives largely from the overall importance of the United Kingdom market for systems operations. Government policy to privatise services within the state-controlled sector has created a strong need for systems operations. For example, in the U.K., six of the fourteen regional health authorities across the country have systems operations contracts in place.

In the banking, finance and insurance sectors, there are relatively few systems operations contracts in Western Europe. These organisations tend to have large and powerful in-house information systems functions and a reluctance to transfer their assets to another organisation unless they have a significant shareholding in that company. This is different from the situation in the United States market, and it remains to be seen whether this situation will change in Europe.


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There are, however, a number of significant systems operations contracts with large financial institutions. Some of these are with U.S. banks that have start-up ventures in Western European markets or with European banks entering new country markets, and some contracts are for less significant parts of the company's total systems portfolio. Banks tend to be very reluctant to release their main client databases to an external vendor, and most banking systems operations opportunities concern front-office systems away from the mainframe processing centre.

## E

## Systems Operations Competitive Environment

Over the last couple of years there has been increased vendor activity in the provision of systems operations services in most of the country markets in Eastern Europe. In addition to established systems operations vendors and processing services companies, leading equipment vendors such as IBM and Digital Equipment have also entered the market. This is being done either directly or via joint ventures such as Axone, the Sema and IBM joint venture in France. Andersen Consulting is bidding and winning contracts in the U.K., and Price Waterhouse is thought to be considering market entry. BIS NYNEX has recently acquired Perthcrest, a U.K. local government facilities management specialist, and CAP Gemini Sogeti has acquired Hoskyns, the U.K. market leader.

Exhibit II-5 lists the leading vendors of systems operations services in Western Europe. EDS is the market leader, even excluding assessment of its captive GM business. All of the companies listed in Exhibit II-5 are independent organisations (i.e., non-equipment vendors). IBM is the only equipment vendor included in INPUT's list of the leading ten systems operations vendors in Western Europe.

EXHIBIT II-5

**Western European Systems Operations Leading Vendors, 1989**

| Company | Market Share (Percent) | Estimated Revenues ($ Millions) |
|---|---|---|
| EDS | 10 | 88 |
| Hoskyns | 6 | 56 |
| Finsiel | 5 | 45 |
| GSI | 5 | 43 |


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Interestingly, the only systems operations vendors with pan-European presence are EDS and IBM. The market still remains largely driven by national suppliers.

The relatively capital-intensive nature of systems operations (in the processing, not the professional services mode) is likely to lead to some competitive restructuring in the future. Large, successful vendors will have the opportunity to acquire medium and small vendors within national markets that are unable to achieve sufficient economies of scale. Ambitious, growth-orientated companies will seek to acquire companies with good operational management skills or to buy up systems operations portfolios.

In the U.K. publication, *The Computer Users' Year Book*, there were 46 companies listed as suppliers of facilities management in 1988; in 1990, there were 80 suppliers listed. Similarly, in France, facilities management was never mentioned in trade annuals a few years ago, and now there are at least 90 companies in France offering facilities management or *gerance de centre*.

The leading vendor in the United Kingdom is Hoskyns, which has a significant lead in market share over its competitors, but does not figure in any other European countries, having recently withdrawn from the Dutch market. Systems operations accounts for nearly half of Hoskyns' total revenues, and its recent acquisition by CAP Gemini Sogeti will provide an opportunity for leveraging Hoskyns' expertise in other countries in Europe.

In France, GSI is the clear market leader. Telesystemes has the second-highest systems operations revenues in France, but a significant proportion of these revenues are captive, placing Telesystemes fifth overall behind EDS, GFI and Cisi. There are no leading French vendors with a significant presence in all the European country markets.

The Italian market is dominated by Finsiel as a result of its pivotal position in providing information services to Italian government departments.


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# Market Analysis and Forecast

# Market Analysis and Forecast

## A Market Structure and Overview

The systems operations market is divided into two subsectors:

- Processing services systems operations
- Professional services systems operations

In the processing services submode, the vendor takes complete responsibility for the provision of an information systems service on a long-term basis (a contract of duration in excess of one year) under a specified service-level agreement. To qualify for inclusion as a processing service, the systems operations service must be provided on equipment owned by the vendor. In many cases the information services assets of the client are transferred to the vendor at the commencement of the contract.

This is in contrast to the professional services subsector, where the client retains title (ownership) of the information systems assets and contracts to provide a people-based (i.e., professional) service on the client's installation.

The fundamental appeal of a systems operations contract to a user is economical. Information systems assets can be realised and ongoing costs and direct employment reduced. Opportunities for systems operations contracts are also to be found in large companies that are undergoing major change in structure or technology. Currently, European organisations are undergoing unprecedented change in both areas.

There is an unprecedented wave of merger and acquisition activity that is restructuring most industry markets, and there is a very strong move away from large centralised mainframes towards smaller distributed systems. Therefore, systems operations vendors have a major opportunity throughout the 1990s to assist companies in making these very important and expensive changes. In some cases the need is for the vendor to provide systems operations to facilitate change; in others, the


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client wishes to concentrate its resources on its core business and is keen to gain the cost reduction and other benefits of outsourcing the information systems function.

## B

## Forecast Assumptions

The market forecasts provided in this report cover the period 1990-1995 and include assessments for the base year of 1989. The forecasts have been formulated in local currency and converted into U.S. dollars for aggregation and comparative purposes. The U.S. dollar and ECU exchange rates used are listed in Exhibit III-1.

EXHIBIT III-1

**U.S. Dollar and ECU Exchange Rates, 1990**

| Country | Currency | US Dollar Exchange Rate | ECU Exchange Rate |
|---|---|---|---|
| France | FF | 6.17 | 6.8 |
| Germany | DM | 1.81 | 2.05 |
| United Kingdom | £ | 0.631 | 0.74 |
| Italy | Lira | 1,336 | 1,502 |
| Sweden | Sek | 6.39 | 7.41 |
| Denmark | DK | 7.05 | 7.8 |
| Norway | NK | 6.85 | 7.94 |
| Finland | FM | 4.21 | 4.84 |
| Netherlands | Dfl | 2.05 | 2.3 |
| Belgium | BF | 38.06 | 42.29 |
| Switzerland | SF | 1.61 | 1.8 |
| Austria | Sch | 12.77 | 14.39 |
| Spain | Ptas | 115.8 | 129.7 |
| Rest of Europe | $ | 1 | 0.83 |


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The forecasts have been expressed in actual monetary terms and they therefore include an allowance for inflation. The general inflation assumptions made by INPUT in formulating these forecasts are listed in Exhibit III-2. This exhibit also shows the inflation assumptions used in INPUT's 1989 market forecasts for comparative purposes.

EXHIBIT III-2

**Inflation Assumptions**

| Country | Assumption 1989-1994 | Assumption 1990-1995 | Change |
|---|---|---|---|
| France | 4 | 4.5 | +0.5 |
| Germany | 2.5 | 4 | +1.5 |
| United Kingdom | 5.5 | 7 | +1.5 |
| Italy | 6 | 7 | +1.0 |
| Sweden | 6 | 7 | +1.0 |
| Denmark | 6 | 5 | -1.0 |
| Norway | 4 | 5 | +1.0 |
| Finland | 6 | 6 | 0.0 |
| Netherlands | 2 | 3 | +1.0 |
| Belgium | 3.5 | 4 | +0.5 |
| Switzerland | 2.5 | 5 | +2.5 |
| Austria | 3 | 4 | +1.0 |
| Spain | 5.5 | 6.5 | +1.0 |
| Rest of Europe | 8 | 10 | +2.0 |
| European Average | 4.5 | 5.5 | +1.0 |


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Appendix A provides the detailed forecast data in local currencies, and Appendix B gives the forecast data in ECUs.

## C
## The Systems Operations Market

The forecast growth of the systems operations market in Western Europe is shown in Exhibit III-3.

EXHIBIT III-3

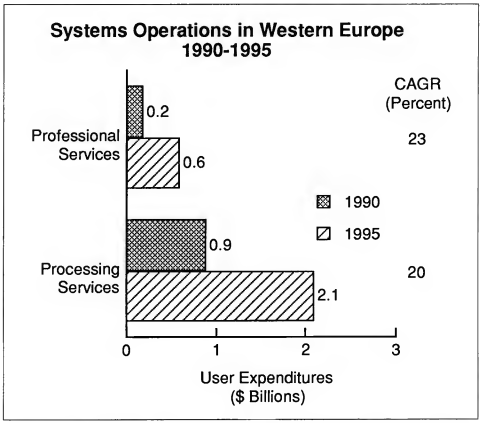


Exhibit III-4 provides more detailed numerical data for the two market submodes. The overall forecast growth (a 20% CAGR, to exceed $2.5 billion by 1995) is based on an assessment of current observable trends in the market. However, it should be recognised that the possibility exists for far higher growth if user resistance to systems operations weakens. INPUT recognises that this possibility exists, and since systems operations represents a direct transfer of expenditure from the "in-house" to the services sector, it would be possible for this to happen quite rapidly.

The financial aspects of systems operations contracts are an extremely important factor. A user sells its IS (information systems) assets, thus gaining additional funds, and generally negotiates to buy back the service at a reduced rate. Additionally, the IS staff is removed from the payroll, often going directly to the systems operation supplier. It is only the vendor who needs to find access to new capital to fund the expansion of the business.


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EXHIBIT III-4

**Systems Operations Market Forecast, 1990-1995**
**Western Europe**

| Subsector | Market Forecast ($ Millions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 725 | 860 | 1,025 | 20 | 2,100 |
| Professional Services | 155 | 195 | 245 | 23 | 560 |
| Total | 880 | 1,055 | 1,270 | 20 | 2,660 |

Systems operations services can thus prove extremely attractive to organisations facing financial pressures. The recessionary trends now beginning to appear in the European economies, notably in the U.K., along with continued cost increases in running large mainframe processing centres, could presage a higher rate of growth than is indicated by current trends.

Traditionally, the operation of the system has been managed in-house, with the outside supplier providing only specific services and products such as systems software, programming support or training. However, many in-house information systems departments are unable to keep pace with fast-changing demands for applications, or to respond swiftly to the need for major changes in technology. The appropriateness of systems operations as a response to end-user needs is conditioned by a greater willingness on the part of clients to contract greater management responsibility to their suppliers. This trend is often referred to as "outsourcing".

As can be seen from Exhibits III-3 and III-4, the majority (some 30%) of the total systems operations market is accounted for by the processing services subsector, where the service is run on vendor-owned equipment. The business is often gained by the client selling the information systems assets to the vendor and handing over complete management responsibility for the running of the system to the systems operations contractor.


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INPUT expects this part of the market to grow at a slightly slower rate than that for professional services systems operations. This is because the professional services sector will be easier to penetrate through the entry markets of systems software support, application systems maintenance and other adjacent markets.

The development of these professional services does not require the selling of IS assets to a vendor, an action that is resisted in Western Europe unless users are forced by economic duress or, in the government sector, by a policy decision to outsource the service.

Exhibit III-5 shows the country market analysis of the total Western European systems operations market. The United Kingdom and France clearly stand out as the two largest individual country markets, together representing over half the total market. Italy is also a relatively significant market and is some way ahead of the remaining countries' systems operations markets. This situation is due to the activities of Finsiel, which was specifically set up for legal reasons to handle the information systems needs of Italian government departments

EXHIBIT III-5

**Comparative Regional Market Sizes Europe, 1990**

| Region | U.S. $ Millions | Market Share (Percent) |
|---|---|---|
| United Kingdom | 300 | 28 |
| France | 300 | 28 |
| Italy | 150 | 14 |
| Scandinavia & Finland | 85 | 8 |
| Benelux | 85 | 8 |
| Germany | 75 | 7 |
| Spain | 30 | 3 |
| Switzerland & Austria | 25 | 2 |
| Rest of Europe | 7 | 1 |
| Total Europe (rounded) | 1,060 | 100 |

Interestingly, Germany has only a 7% share of the overall market for systems operations. The particular reluctance on the part of German companies to adopt service solutions is likely to continue to prevent the German sector from reaching its potential relative to the size of its economy.

Exhibit III-6 provides more detailed country market data and the five-year forecast for each country, converted into U.S. dollars for comparative purposes.


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EXHIBIT III-6

## Systems Operations Comparative Country Markets Western Europe, 1990-1995

| | Market Forecast ($ Millions) | | | | |
|---|---|---|---|---|---|
| Subsector | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| France | 250 | 300 | 355 | 19 | 710 |
| Germany | 65 | 75 | 90 | 18 | 170 |
| United Kingdom | 240 | 300 | 370 | 23 | 830 |
| Italy | 130 | 150 | 180 | 22 | 400 |
| Sweden | 30 | 35 | 40 | 16 | 75 |
| Denmark | 11 | 13 | 15 | 17 | 30 |
| Norway | 10 | 12 | 15 | 16 | 25 |
| Finland | 20 | 25 | 30 | 19 | 65 |
| Netherlands | 45 | 55 | 65 | 20 | 135 |
| Belgium | 25 | 30 | 35 | 18 | 75 |
| Spain | 25 | 30 | 35 | 16 | 65 |
| Switzerland | 12 | 15 | 20 | 19 | 40 |
| Austria | 7 | 8 | 9 | 16 | 17 |
| Rest of Europe | 6 | 7 | 9 | 24 | 20 |
| Total (Rounded) | 880 | 1,055 | 1,270 | 20 | 2,660 |


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## D

### Competitive Environment

Exhibit III-7 shows the 10 leading systems operation vendors in Western Europe in 1989. Only one of these vendors, IBM, is an equipment manufacturer, although there are indications that other equipment vendors such as Digital are entering the market. Only three of these leading 10 are U.S.-owned companies, but of these, two—IBM and EDS—are the only companies with anything approaching a pan-European portfolio. Hoskyns for example, is the number two vendor in Europe, but since its withdrawal from the Dutch market, its systems operations revenues are now derived entirely from the United Kingdom. It is possible that Cap Gemini Sogeti will use its acquisition of Hoskyns to generate a pan-European systems operations business.

EXHIBIT III-7

**Leading Vendors of Systems Operations Western Europe, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues ($ Millions) |
|---|---|---|---|
| 1 | EDS | 10 | 88 |
| 2 | Hoskyns | 6 | 56 |
| 3 | Finsiel | 5 | 45 |
| 4 | GSI | 5 | 43 |
| 5 | SD-Scicon | 3 | 30 |
| 6 | AT&T Istel | 2 | 19 |
| 7 | Concept | 2 | 19 |
| 8 | IBM | 2 | 18 |
| 9 | Cisi | 2 | 16 |
| 10 | Telesystemes | 2 | 15 |
| | Other | 61 | 531 |
| | Total | 100 | 880 |


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The relatively capital-intensive nature of systems operations (in the processing, not the professional services mode) is likely to lead to some competitive restructuring in the future. Large, successful vendors will have the opportunity to acquire medium and small vendors within national markets that are unable to achieve sufficient economies of scale. Ambitious, growth-orientated companies will seek to acquire either those companies with good operational management skills or to buy up systems operation portfolios.

## E
## Industry Market Analysis

The industry sector analysis of the systems operations market is shown in Exhibit III-8. The largest sector is process manufacturing, accounting for just over a fifth of the total market.

EXHIBIT III-8

**Systems Operations Industry Sector Market Analysis—Western Europe, 1989**

| Industry Sector | Market Size ($ Millions) | Percent of Total ($ Millions) |
|---|---|---|
| Manufacturing | | |
| - Discrete | 180 | 17 |
| - Process | 230 | 22 |
| Distribution (Retail and Wholesale) | 45 | 4 |
| Transportation | 40 | 4 |
| Utilities | 55 | 5 |
| Banking and Finance | 60 | 6 |
| Insurance | 30 | 3 |
| Government | | |
| - National | 190 | 18 |
| - Local | 140 | 13 |
| Services | 45 | 4 |
| Others | 40 | 4 |
| Total | 1,055 | 100 |


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Other significant differences between the systems operations industry sectors and the software and services market as a whole are the relative weakness of banking and finance and insurance in systems operations, and the relative strength of central and local government.

The importance of the central and local government sectors is due to the relative importance of the United Kingdom market, and the fact that these sectors are the most active in the United Kingdom due to government policies. There are also, however, important government contracts in France and the Netherlands.

In the banking, finance and insurance sectors, there are relatively few systems operations contracts throughout Western Europe. These organisations tend to have large and powerful in-house information systems functions and are reluctant to transfer their assets to another organisation unless they have a significant shareholding in that company. This is different from the situation in the United States market, and it remains to be seen whether this situation will change in Europe.

There are, however, a number of significant systems operations contracts with large financial institutions. Some of these are with U.S. banks that have start-up ventures in Western European country markets or with European banks entering new country markets, and some contracts are for less significant parts of the company's total systems portfolio. Banks tend to be very reluctant to release their main client databases to an external vendor, and most banking systems operations opportunities concern front-office systems away from the mainframe processing centre. However, Sopra in France has had a complete systems operations contract with a French commercial bank since 1976.

It is possible that the pressures of deregulation and increased competition could, in the long term, affect the banking, finance and insurance markets, just as they are affecting the manufacturing markets. The break-up of closed user group processing centres for banks in Scandinavia and Germany could provide many opportunities for systems operations vendors with financial sector clients.


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# Country Market Analysis

# IV

# Country Market Analysis

## A

## France

France is one of the two largest individual country markets in Europe. The market analysis and forecast for France is shown in Exhibit IV-1. The market for systems operations services has developed considerably in the last five years and potential clients are now much more aware of the concept of systems operations. This means that vendors can now devote more of their marketing and sales effort to promoting their unique service offerings rather than marketing the general systems operations concept.

EXHIBIT IV-1

**Systems Operations Market Forecast, 1990-1995**
**France**

| | Market Forecast (FF Millions) | | | | |
|---|---|---|---|---|---|
| Subsector | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 1,250 | 1,450 | 1,700 | 18 | 3,280 |
| Professional Services | 300 | 380 | 480 | 24 | 1,120 |
| Total | 1,550 | 1,830 | 2,180 | 19 | 4,400 |


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There are now at least 90 companies in France offering facilities management or *gerance de centre*. The leading systems operations vendors in France are listed in Exhibit IV-2, with GSI as the clear market leader. Telesystèmes would occupy the second position were it not for the fact that a large proportion of its revenues has been designated as captive to France Telecom. Axone, the newest entrant to the market, is a joint venture between Sema and IBM. Axone also offers disaster recovery services.

EXHIBIT IV-2

**Leading Systems Operations Vendors**
**France, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (FF Millions) |
|---|---|---|---|
| 1 | GSI | 16 | 250 |
| 2 | EDS | 8 | 130 |
| 3 | GFI | 8 | 125 |
| 4 | Cisi | 7 | 100 |
| 5 | Telesystemes | 6 | 90 |
| 6 | Dataid | 5 | 70 |
| 7 | Sitb-Ageris | 4 | 55 |
| 8 | Sodinforg | 3 | 45 |
| 9 | Concept | 3 | 45 |
| 10 | Axone | 2 | 30 |
| | Other | 38 | 610 |
| | Total | 100 | 1,550 |

The approach of systems operations vendors in France is distinct from that of the United Kingdom or the United States, in that there is less emphasis on taking over the whole of the processing resource. Companies such as GSI approach systems operations as a human resources


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opportunity. Systems operations contracts initiate the transfer of people from the user community to the vendor community. It is the opportunity to employ these people and utilise their skills, often doing the same basic job function as they were when working directly for the client, that generates revenue expansion.

## B

## Germany

To date, Germany has been a very difficult environment for systems operations vendors. German users have not in general been predisposed to service solutions, and systems operations presents an even greater challenge than the sale of ad-hoc services. However, the pressure on users to reduce processing centre costs and retain key information systems staff are present in the market-place in Germany as elsewhere.

The development of systems operations services by Debis Systemhaus Gmbh (a division of Daimler Benz) for example, is a strong indication that the market potential for systems operations services exists. Consequently, INPUT is predicting strong growth over the next few years in this market. The forecast for the German market is shown in Exhibit IV-3.

EXHIBIT IV-3

**Systems Operations Market Forecast, 1990-1995**
**Germany**

| Subsector | Market Forecast (DM Millions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 100 | 110 | 125 | 16 | 230 |
| Professional Services | 20 | 25 | 32 | 25 | 75 |
| Total (Rounded) | 120 | 135 | 155 | 18 | 305 |

The leading systems operations vendors in Germany are listed in Exhibit IV-4. EDS clearly has market leadership, which it has been able to develop from its captive revenue base of Adam Opel (the German subsidiary of GM). Whilst some small companies, notably Alldata, have


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developed systems operations services in response to the needs of certain clients, newer entrants now include major companies like IBM, Digital and, as mentioned above, Daimler Benz. This increase in vendor activity will increase the market profile and user awareness of systems operations as a service solution for German companies.

EXHIBIT IV-4

**Leading Systems Operations Vendors Germany, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (DM Millions) |
|---|---|---|---|
| 1 | EDS | 50 | 60 |
| 2 | IBM | 13 | 15 |
| 3 | Daimler Benz | 8 | 10 |
| 4 | Alldata | 6 | 7 |
| 5 | Digital | 4 | 5 |
| 6 | Taylorix | 3 | 4 |
| 7 | Siemens | 3 | 3 |
| 8 | AC | 1 | 1.3 |
| 9 | Datron | 1 | 1 |
| 10 | Sietec | 1 | 0.7 |
| | Others | 10 | 13 |
| | Total | 100 | 120 |

Vendor experience indicates that it can take many years of discussions before a German company will sell its assets to an external vendor, but as more contracts are signed, and the advantages and nature of the service become more widely known, systems operations is likely to develop into a more significant market. In any event, forecast growth for the profes-


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sional services subsector is much higher than that for the processing services subsector of systems operations. The sale of information systems assets is, of course, only required for the development of the processing services subsector.

It could be argued that multinational companies, having a more international culture, might be better prospects for systems operations services in Germany. This does not take into account the likelihood that a multinational company's German subsidiary, particularly if well established, will exhibit many of the traits of a German-owned company. The best potential for selling systems operations services might therefore be into multinational companies that are new to the German market, and that are establishing start-up companies there. The most developed industry market sector in Germany is manufacturing.

## C United Kingdom

The United Kingdom, with France, is one of the major systems operations country markets in Europe. In the last couple of years some major operations contracts have been placed in the United Kingdom, significantly raising the profile of this service mode amongst the user and vendor communities. Some example of these major contracts are listed below:

- The DRG Group placed a £4 million per-annum systems operations contract with Andersen Consulting.
- The Varity Corporation placed a £7 million per-annum contract with Data Networks PLC, part of the Sema Group.
- The central computing facility of the defunct GLC (Greater London Council), the London Residuary Body, placed a £13 million per annum contract with Hoskyns, now part of the CAP Gemini Sogeti organisation. This contract is now being run down.

Vendors are reporting a considerable increase in user interest in systems operations services in the U.K. market. Currently, recessionary forces within the United Kingdom economy are likely to further this trend, as users seek approaches that can help them reduce costs for their information systems organisations. Exhibit IV-5 shows the market growth forecast for the United Kingdom market.

In addition to the interest and activity evident in the commercial sector for this delivery mode, there has been very strong demand generated in the government sector. Government policy, both for central government departments and local government organisations, has provided a considerable boost to the market. Perthcrest, for example, is a vendor that has specialised in the local government systems operations market. Perthcrest is now part of NYNEX, following acquisition by NYNEX' BIS subsidiary.


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EXHIBIT IV-5

**Systems Operations Market Forecast, 1990-1995**
**United Kingdom**

| Subsector | Market Forecast (£ Millions) | | | | |
|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 135 | 170 | 210 | 23 | 470 |
| Professional Services | 15 | 19 | 24 | 24 | 55 |
| Total (Rounded) | 150 | 190 | 235 | 23 | 525 |

The growth of the potential vendor community in the United Kingdom is evidenced by the growth in the number of companies listed in the U.K. *Computer Users Year Book* as suppliers of facilities management services. In 1988 the figure was 46; in the 1990 edition, 80 vendors are listed. These new entrants include not only major multinational organisations such as Andersen Consulting, but smaller processing services companies. NMW, for example, is a processing services company specialising in the financial services sector that has developed a system operations capability. ITnet is a systems operations vendor that was developed from the internal information systems department of Cadbury Schweppes. Management buyouts have also been a favoured approach encouraged by the availability of finance and the increased acceptability of the systems operations concept.

Exhibit IV-6 lists the leading ten vendors in the United Kingdom operations market. Hoskyns, as mentioned above, is of course now part of the CAP Gemini Sogeti group.


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EXHIBIT IV-6

**Leading Systems Operations Vendors**
**United Kingdom, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (£ Millions) |
|---|---|---|---|
| 1 | Hoskyns | 25 | 38 |
| 2 | EDS | 10 | 15 |
| 3 | AT&T Istel | 10 | 14 |
| 4 | Datasolve | 8 | 12 |
| 5 | Data Networks Plc | 5 | 7 |
| 6 | SD-Scicon | 4 | 6 |
| 7 | CMG | 3 | 5 |
| 8 | Andersen Consulting | 3 | 4 |
| 9 | CFM | 1 | 2 |
| 10 | ITnet | 1 | 2 |
| | Other | 30 | 45 |
| | Total | 100 | 150 |

## D Italy

The Italian market is the third largest individual country market in Europe, largely due to the dominant position of Finsiel. Finsiel is the largest independent software and services organisation in Italy and owes its position to the unique nature of its market—the provision of processing services to Italy's governmental and public sector institutions. The market analysis and forecast for the Italian market and the leading five vendors are shown in Exhibits IV-7 and IV-8, respectively.


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EXHIBIT IV-7

**Systems Operations Market Forecast, 1990-1995**
**Italy**

| Subsector | Market Forecast (Lira Billions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 130 | 150 | 180 | 20 | 380 |
| Professional Services | 40 | 50 | 63 | 25 | 155 |
| Total (Rounded) | 170 | 200 | 245 | 22 | 535 |

EXHIBIT IV-8

**Leading Systems Operations Vendors**
**Italy, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (Lira Billions) |
|---|---|---|---|
| 1 | Finsiel | 35 | 60 |
| 2 | CDS/Concept | 9 | 15 |
| 3 | Cerved | 6 | 10 |
| 4 | Sarin | 4 | 6 |
| 5 | Datitalia | 2 | 4 |
| | Other | 44 | 75 |
| | Total | 100 | 170 |


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Apart from Finsiel's special market situation in the public sector there is not, as yet, any evidence to indicate a significant shift in emphasis from internal to external sourcing for systems operations services. However, the concept of outsourcing is well understood in general by the user community. The activities of EDS, for example, are well known, although no contracts outside of the captive GM sphere have yet been awarded to EDS.

An area of opportunity in the Italian market is in providing systems operations contracts for financial institutions. Considerable rationalisation amongst a fragmented banking sector in the pre-1992 environment is likely to generate systems operations business opportunities.

## E

## Sweden

Although Sweden has a substantial processing service sector, this has not led to the development of a strong systems operations market. There is no evidence, for example, of users contracting out their systems operations functions to assist them in the shift to new systems and new technology. However, the problems now evident in the economy and the consequent need to control internal costs may have some impact on the growth of the systems operations sector. The break-up of co-operative processing services organisations and the need to adjust to change—for example, the industrial restructuring generated by merger and acquisition activity—may be further driving forces for systems operations. The most powerful inhibitor to the growth of systems operations in Sweden is labour legislation, which makes the transfer of staff between organisations—from the user to the systems operations vendor—a complex and costly operation.

In consequence, the growth of the systems operations market in Sweden, shown in Exhibit IV-9, is at one of the lowest rates forecast for any European country. The leading five vendors in this market sector are listed in Exhibit IV-10. The absence of the multinationals is notable. However, IBM has an equity stake in Modulforetagen Piadata, and EDS may gain an opportunity to penetrate the market through support activities at Saab now that GM has taken a 50% shareholding in that company.


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EXHIBIT IV-9

**Systems Operations Market Forecast, 1990-1995**
**Sweden**

| Subsector | Market Forecast (Sek Millions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 180 | 205 | 235 | 16 | 435 |
| Professional Services | 20 | 23 | 27 | 17 | 50 |
| Total (Rounded) | 200 | 230 | 260 | 16 | 485 |

EXHIBIT IV-10

**Leading Systems Operations Vendors**
**Sweden, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (Sek Millions) |
|---|---|---|---|
| 1 | EDEBE | 30 | 60 |
| 2 | Svenska Datacentralen | 15 | 30 |
| 3 | Databolin | 5 | 10 |
| 4 | Modulforetagen Piadata | 3 | 6 |
| 5 | DAAB | 2 | 3 |
| | Other | 45 | 91 |
| | Total | 100 | 200 |


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F

## Denmark

The forecast for growth in the Danish systems operations market is shown in Exhibit IV-11. A key difference for the Danish market in comparison with that of Sweden is the much more liberal employment law. This could allow systems operation contracts to be developed much more quickly than is anticipated in Sweden.

EXHIBIT IV-11

**Systems Operations Market Forecast, 1990-1995**
**Denmark**

| | Market Forecast (DK Millions) | | | | |
|---|---|---|---|---|---|
| Subsector | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 60 | 70 | 82 | 17 | 150 |
| Professional Services | 15 | 18 | 21 | 17 | 40 |
| Total (Rounded) | 75 | 90 | 105 | 17 | 190 |

The restructuring of industry, commerce and finance— a common feature in Europe in general in the run up to 1993—is certainly affecting Denmark. These changes could be a potent driving force for systems operations contracts as new groupings create organisations without the necessary skills to run their own facilities or that cannot develop them quickly enough internally.

A good example of this restructuring is taking place within the Danish banking system. Essentially, Denmark has too many banks with too many branches to compete successfully in a deregulated environment. As a result, we are witnessing a restructuring of the sector—for example, the merging of the Den Danske Bank, the Copenhagen Handlesbank and the Provinsbanken. Another example is the merger of the Privatbanken, SDS and the Andelsbanken. The result of these mergers is critical for a service vendor like PBS, the largest processing services and systems operations vendor in Denmark, that has seen six large clients reduced to two. This reduction in the number of competitors may also lead these two remaining organisations to be more reluctant to outsource critical functions with the same vendor.


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Exhibit IV-12 lists the leading five vendors in the Danish systems operations market. PBS and JDC are clearly the two most important vendors in this market.

EXHIBIT IV-12

**Leading Systems Operations Vendors**
**Denmark, 1989**

| | Company | Market Share (Percent) | Estimated Revenues (DK Millions) |
|---|---|---|---|
| 1 | PBS | 27 | 20 |
| 2 | JDC | 20 | 15 |
| 3 | IBM | 8 | 6 |
| 4 | OK Data | 7 | 5 |
| 5 | Datema | 1 | 1 |
| | Other | 37 | 28 |
| | Total | 100 | 75 |

## G

## Norway

In Norway, as in other Scandinavian countries, processing services companies are splitting up and restructuring. Amongst potential clients, deregulation has meant that banks and insurance companies are having to compete, and the rigidity of the closed user group processing centre, with competitors using the same applications, is not appropriate to the new situation. In addition, the cost of mainframes and mainframe software is making the large processing centre less competitive in comparison to an AS/400, or a minicomputer using UNIX. As Norwegian companies reevaluate and change their information systems strategies, some systems operations opportunities will arise.

One reason for external contracting is a shortage of skills. However, there is not the same shortage of information systems skills in Norway as in other countries. Norway has one of the highest rates of unemployment among people with information systems skills in Europe. The problem of restrictive labour laws in Norway is not as severe as in Sweden, nor


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are labour laws as liberal as in Denmark. Firms reducing their headcounts are a driving force in the Norwegian systems operations market. The market forecast for Norway is shown in Exhibit IV-13.

EXHIBIT IV-13

**Systems Operations Market Forecast, 1990-1995**
**Norway**

| | Market Forecast (NK Millions) | | | | |
|---|---|---|---|---|---|
| Subsector | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 55 | 65 | 80 | 17 | 140 |
| Professional Services | 15 | 18 | 21 | 14 | 35 |
| Total (Rounded) | 70 | 85 | 100 | 16 | 175 |

Exhibit IV-14 lists the leading systems operations vendors in Norway. There is considerable consolidation taking place, as in the case of NIT, which has emerged out of Kommunedata. Additionally, Teamco and Probus have merged their activities and will be known as Teamco AS from January 1991. The availability of large contracts is limited in Norway. It is the small companies sharing large mainframe costs that are feeling the pressures and that are turning to outsourcing first. The move away from the mainframe is one of the key drivers in the Norwegian market.


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EXHIBIT IV-14

**Leading Systems Operations Vendors**
**Norway, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (NK Millions) |
|---|---|---|---|
| 1 | EDB A/S | 14 | 10 |
| 2 | NIT | 11 | 8 |
| 3 | IBM | 9 | 6 |
| 4 | Teamco | 7 | 5 |
| 4 | Nordata Vestdata | 7 | 5 |
| 6 | Fellesdata | 6 | 4 |
| 7 | CM | 3 | 2 |
| 7 | Service Data | 3 | 2 |
| 9 | Probus | 1 | 1 |
| 9 | Rogafansdata | 1 | 1 |
| | Other | 38 | 26 |
| | Total | 100 | 70 |

## H

### Finland

Computer users in Finland are suffering from a combination of high software development costs and an inability to keep their information systems staffs due to shortages of key skills. There is a major decentralisation of information systems processing currently taking place in Finland, and systems operations is an opportunity for processing vendors to continue their client relationships by leveraging their skills base, instead of losing out completely to in-house solutions. As a result of this decentralisation, combined with lack of skills to implement new solutions in-house, Finland is exhibiting higher growth than any other coun-


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try market in the Scandinavian region. As indicated in Exhibit IV-15, the compound annual growth rate forecast for Finland over the next five years is 19%.

EXHIBIT IV-15

**Systems Operations Market Forecast, 1990-1995**
**Finland**

| | Market Forecast (FM Millions) | | | | |
|---|---|---|---|---|---|
| Subsector | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 80 | 95 | 110 | 19 | 225 |
| Professional Services | 15 | 18 | 22 | 20 | 45 |
| Total (Rounded) | 95 | 115 | 130 | 19 | 270 |

Finnish-owned companies are dominant in the leading five systems operations vendors listed in Exhibit IV-16, although Programatic is in fact the subsidiary of Programator, a Swedish-owned company.


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EXHIBIT IV-16

**Leading Systems Operations Vendors**
**Finland, 1989**

| | Company | Market Share (Percent) | Estimated Revenues (FM Millions) |
|---|---|---|---|
| 1 | Tietotehdas | 26 | 25 |
| 2 | Paakupunk | 16 | 15 |
| 3 | Programatic | 8 | 8 |
| 4 | VTKK | 5 | 5 |
| 5 | IBM | 4 | 4 |
| | Other | 41 | 38 |
| | Total | 100 | 95 |

## I

## The Netherlands

Dutch companies, as others in Western Europe, are involved in reviewing and debating the issues raised by outsourcing—namely, the extent to which it is appropriate to apply it to the critical "core" business systems or only to supportive back-office functions. Large, in-house information systems departments are coming under pressure through their inability to respond to the changing needs of business. As in many countries, the shortage of IBM systems skills, exacerbated by the current confusion over SAA and all the current changes in IBM software strategies, is tempting some companies to rid themselves of the problem by using an outside contractor.

The forecast for the Dutch market is shown in Exhibit IV-17. One strong inhibiting force in this market is the very restrictive Dutch employment legislation, which makes it very difficult to shed labour. This lack of flexibility could deter some vendors from developing the market.


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EXHIBIT IV-17

**Systems Operations Market Forecast, 1990-1995**
**The Netherlands**

| Subsector | Market Forecast (Dfl Millions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 70 | 82 | 96 | 19 | 195 |
| Professional Services | 25 | 31 | 38 | 22 | 85 |
| Total (Rounded) | 95 | 115 | 135 | 20 | 280 |

One company that has withdrawn because of these labour problems is Hoskyns, which no longer conducts systems operations in the Dutch market. At the same time, a new entrant to the market is Volmac, which has acquired a government computer centre in Heerlen, and has been operating a systems operations business since the beginning of 1990. Additionally, H.C.S. Facility Services has set up an operation in Nieuwegein.

RAET, which is the leading vendor in the Netherlands, as shown in Exhibit IV-18, is restructuring its offering in this market with a view to making itself more international, and to improve its networking capabilities. It has, however, experienced problems similar to those of Hoskyns due to employment legislation that is restricting its growth in this market.


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EXHIBIT IV-18

**Leading Systems Operations Vendors**
**The Netherlands, 1989**

| | Company | Market Share (Percent) | Estimated Revenues (Dfl Millions) |
|---|---|---|---|
| 1 | RAET | 21 | 20 |
| 2 | EDS | 16 | 15 |
| 3 | CMG | 13 | 12 |
| 4 | BV Computer Centrum | 4 | 4 |
| 5 | CSC/CIG | 3 | 3 |
| | Other | 43 | 41 |
| | Total | 100 | 95 |

## J

## Belgium

Belgium is a relatively small market for systems operations services and is further fragmented by being split into a Dutch-speaking subsector and a French-speaking subsector. Exhibit IV-19 shows the overall systems operations market forecast for Belgium. The list of leading vendors in Belgium is shown in Exhibit IV-20.

Interestingly, only one of these vendors, Cegeka, is majority owned by a Belgian company, underlining the international nature of the market and the role of Brussels as an attraction for European headquarters locations. The Dutch-speaking area of Belgium is attractive for market entry by Dutch companies, as shown by the start-up activities in 1990 of Volmac and H.C.S. Facility Services.


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EXHIBIT IV-19

## Systems Operations Market Forecast, 1990-1995 Belgium

| Subsector | Market Forecast (BF Millions) | | | | |
|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 900 | 1,040 | 1,220 | 18 | 2,420 |
| Professional Services | 130 | 155 | 185 | 18 | 355 |
| Total (Rounded) | 1,030 | 1,195 | 1,405 | 18 | 2,775 |

EXHIBIT IV-20

## Leading Systems Operations Vendors Belgium, 1989

| Rank | Company | Market Share (Percent) | Estimated Revenues (BF Millions) |
|---|---|---|---|
| 1 | CSC | 29 | 300 |
| 2 | Cegeka | 15 | 150 |
| 3 | EDS | 12 | 120 |
| 4 | IBM | 10 | 100 |
| 5 | CMG | 6 | 60 |
| | Other | 28 | 300 |
| | Total | 100 | 1,030 |


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## K

### Switzerland

The systems operations market in Switzerland is very small (around $17 million in 1990) and forecast to grow at a rate below that of the European market as a whole. The market analysis and forecast is shown in Exhibit IV-21. This assessment could change if there is a considerable revision of the current conservative attitude towards outsourcing.

EXHIBIT IV-21

**Systems Operations Market Forecast, 1990-1995**
**Switzerland**

| | Market Forecast (SF Millions) | | | | |
|---|---|---|---|---|---|
| Subsector | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 20 | 24 | 29 | 18 | 55 |
| Professional Services | 2 | 3 | 4 | 22 | 8 |
| Total | 22 | 27 | 33 | 18 | 63 |

It is important to recognise that the Swiss market in general is beginning to face considerable challenges, as its independent role within a more economically integrated Europe—particularly in respect to the banking and finance sector—is reassessed. Potential positive moves towards outsourcing could be generated by the Swiss process manufacturing sector—a strong sector for systems operations in general—and the high costs of computer personnel.

The leading vendors in the Swiss systems operations market are listed in Exhibit IV-22. Apart from the Swiss market leader Telekurs, the market is dominated by foreign-owned companies.


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EXHIBIT IV-22

**Leading Systems Operations Vendors Switzerland, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (SF Millions) |
|---|---|---|---|
| 1 | Telekurs | 35 | 7 |
| 2 | IBM | 10 | 2 |
| 3 | AC | 10 | 2 |
| 4 | Digital | 5 | 1 |
| 5 | GSI | 5 | 1 |
| | Other | 35 | 7 |
| | Total | 100 | 20 |

## L. Austria

The Austrian market demonstrates similar buyer resistance to the systems operations philosophy to that in the German market. The Austrian market analysis and forecast is shown in Exhibit IV-23.

The leading system operations vendors in Austria are listed in Exhibit IV-24. German-owned vendors exploiting the German-language market and major multinational equipment vendors, with their strong support presence are the most likely to be able to develop the systems operations opportunities that do arise.


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EXHIBIT IV-23

**Systems Operations Market Forecast, 1990-1995**
**Austria**

| Subsector | Market Forecast (Sch Millions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 65 | 74 | 84 | 16 | 155 |
| Professional Services | 25 | 29 | 34 | 16 | 60 |
| Total (Rounded) | 90 | 105 | 120 | 16 | 215 |

EXHIBIT IV-24

**Leading Systems Operations Vendors**
**Austria, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (Sch Millions) |
|---|---|---|---|
| 1 | IBM | 17 | 15 |
| 2 | Data Service | 13 | 12 |
| 3 | GRZ | 9 | 8 |
| 4 | Unisys | 7 | 6 |
| 5 | Management Data | 3 | 3 |
| | Other | 51 | 46 |
| | Total | 100 | 90 |


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## M

## Spain

Although Spain is one of the fastest growing country markets for software and services generally, systems operations is not a market that is expected to exhibit very strong growth in the imminent future. As shown in Exhibit IV-25, the compound annual growth rate for Spain is 16%—which, allowing for inflation, indicates real growth of less than 10%.

EXHIBIT IV-25

**Systems Operations Market Forecast, 1990-1995**
**Spain**

| Rank Subsector | Market Forecast (Ptas Millions) 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
|---|---|---|---|---|---|
| Processing Services | 1,500 | 1,700 | 1,940 | 16 | 3,540 |
| Professional Services | 1,400 | 1,700 | 2,040 | 17 | 3,700 |
| Total (Rounded) | 2,900 | 3,400 | 3,980 | 16 | 7,240 |

EDS, which naturally has been supporting General Motors in Spain at its plant in Zaragoza, recently began a contract with Telefonica. However, in general there is still no clear indication of strong interest in outsourcing in Spain. Two attempts to develop systems operations contracts, one with Cadbury Schweppes and the other with Font Vella, have fallen through.

The leading vendors, apart from IBM, are likely to be dominated by French-owned companies. The strength of systems operations vendors in France will allow vendors such as GSI to extend into the Spanish market through their existing subsidiaries. The leading five vendors in Spain are shown in Exhibit IV-26.


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EXHIBIT IV-26

**Leading Systems Operations Vendors**
**Spain, 1989**

| Rank | Company | Market Share (Percent) | Estimated Revenues (Ptas Millions) |
|---|---|---|---|
| 1 | GSI | 9 | 250 |
| 2 | Entel | 8 | 240 |
| 3 | IBM | 7 | 200 |
| 4 | Alcatel | 3 | 100 |
| 5 | Eltec | 2 | 50 |
| | Other | 71 | 2,060 |
| | Total | 100 | 2,900 |

N

## Rest of Europe

The remaining countries, not identified individually above, are the three smallest economies in Europe: Portugal, Greece, and the Republic of Ireland. In total they represent only a very small market for systems operations, as is shown in Exhibit IV-27. The development of the market in these three countries is most likely to be stimulated during the forecast period by the severe shortage of experienced systems programmers and other information systems support staff. It is also a market more likely to be developed by non-indigenous vendors—but Matrix, a Dublin-based software and services company, has recently launched a system operations service.


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EXHIBIT IV-27

**Systems Operations Market Forecast, 1990-1995**
**Rest of Europe**

| Rank Subsector | Market Forecast ($ Millions) | | | | |
|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1990-1995 CAGR (Percent) | 1995 |
| Processing Services | 5 | 6 | 7 | 22 | 16 |
| Professional Services | 1 | 1 | 2 | 32 | 4 |
| Total | 6 | 7 | 9 | 23 | 20 |


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# Appendixes

# Detailed Forecast Data, Local Currencies

EXHIBIT A-1

**Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) France**

| Subsector | 1989 (FF Millions) | 1989-1990 Growth (Percent) | FF Millions 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| Processing Services | 1,250 | 16 | 1,450 | 1,700 | 1,990 | 2,340 | 2,750 | 3,280 | 18 |
| Professional Services | 300 | 27 | 380 | 480 | 600 | 745 | 920 | 1,120 | 24 |
| Total (Rounded) | 1,550 | 18 | 1,830 | 2,180 | 2,590 | 3,085 | 3,670 | 4,400 | 19 |

EXHIBIT A-2

**Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Germany**

| Subsector | 1989 (DM Millions) | 1989-1990 Growth (Percent) | DM Millions 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| Processing Services | 100 | 10 | 110 | 125 | 145 | 165 | 195 | 230 | 16 |
| Professional Services | 20 | 25 | 25 | 32 | 41 | 51 | 62 | 75 | 25 |
| Total (Rounded) | 120 | 13 | 135 | 155 | 185 | 215 | 255 | 305 | 18 |


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EXHIBIT A-3

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) United Kingdom

| Subsector | 1989 (£ Millions) | 1989-1990 Growth (Percent) | £ Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 135 | 26 | 170 | 210 | 260 | 320 | 390 | 470 | 23 |
| Professional Services | 15 | 27 | 19 | 24 | 30 | 37 | 45 | 55 | 24 |
| Total (Rounded) | 150 | 26 | 190 | 235 | 290 | 355 | 435 | 525 | 23 |

EXHIBIT A-4

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Italy

| Subsector | 1989 (Lira Millions) | 1989-1990 Growth (Percent) | Lira Billions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 130 | 15 | 150 | 180 | 215 | 255 | 310 | 380 | 20 |
| Professional Services | 40 | 25 | 50 | 63 | 80 | 100 | 125 | 155 | 25 |
| Total (Rounded) | 170 | 18 | 200 | 245 | 295 | 355 | 435 | 535 | 22 |


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EXHIBIT A-5

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Sweden

| Subsector | 1989 (Sek Millions) | 1989-1990 Growth (Percent) | Sek Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 180 | 14 | 205 | 235 | 270 | 315 | 370 | 435 | 16 |
| Professional Services | 20 | 15 | 23 | 27 | 32 | 37 | 43 | 50 | 17 |
| Total (Rounded) | 200 | 14 | 230 | 260 | 300 | 350 | 415 | 485 | 16 |

EXHIBIT A-6

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Denmark

| Subsector | 1989 (DK Millions) | 1989-1990 Growth (Percent) | DK Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 60 | 17 | 70 | 82 | 96 | 112 | 130 | 150 | 17 |
| Professional Services | 15 | 20 | 18 | 21 | 25 | 29 | 34 | 40 | 17 |
| Total (Rounded) | 75 | 17 | 90 | 105 | 120 | 140 | 165 | 190 | 17 |


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EXHIBIT A-7

## Systems Operations Market Forecast by Subsector, 1990-1995 (In Local Currency) Norway

| Subsector | 1989 (NK Millions) | 1989-1990 Growth (Percent) | NK Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 55 | 18 | 65 | 80 | 95 | 110 | 125 | 140 | 17 |
| Professional Services | 15 | 20 | 18 | 21 | 24 | 27 | 31 | 35 | 14 |
| Total (Rounded) | 70 | 19 | 85 | 100 | 120 | 135 | 155 | 175 | 16 |

EXHIBIT A-8

## Systems Operations Market Forecast by Subsector, 1990-1995 (In Local Currency) Finland

| Subsector | 1989 (FM Millions) | 1989-1990 Growth (Percent) | FM Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 80 | 19 | 95 | 110 | 130 | 155 | 185 | 225 | 19 |
| Professional Services | 15 | 20 | 18 | 22 | 27 | 33 | 39 | 45 | 20 |
| Total (Rounded) | 95 | 19 | 115 | 130 | 155 | 190 | 225 | 270 | 19 |


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EXHIBIT A-9

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) The Netherlands

| Subsector | 1989 (Dfl Millions) | 1989-1990 Growth (Percent) | Dfl Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 70 | 17 | 82 | 96 | 113 | 133 | 160 | 195 | 19 |
| Professional Services | 25 | 24 | 31 | 38 | 47 | 58 | 70 | 85 | 22 |
| Total (Rounded) | 95 | 19 | 115 | 135 | 160 | 190 | 230 | 280 | 20 |

EXHIBIT A-10

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Belgium

| Subsector | 1989 (BF Millions) | 1989-1990 Growth (Percent) | BF Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 900 | 16 | 1,040 | 1,220 | 1,440 | 1,700 | 2,020 | 2,420 | 18 |
| Professional Services | 130 | 19 | 155 | 185 | 220 | 260 | 305 | 355 | 18 |
| Total (Rounded) | 1,030 | 16 | 1,195 | 1,405 | 1,660 | 1,960 | 2,325 | 2,775 | 18 |


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EXHIBIT A-11

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Switzerland

| Subsector | 1989 (SF Millions) | 1989-1990 Growth (Percent) | SF Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 20 | 20 | 24 | 29 | 34 | 40 | 47 | 55 | 18 |
| Professional Services | 2 | 50 | 3 | 4 | 5 | 6 | 7 | 8 | 22 |
| Total | 22 | 23 | 27 | 33 | 39 | 46 | 54 | 63 | 18 |

EXHIBIT A-12

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Austria

| Subsector | 1989 (Sch Millions) | 1989-1990 Growth (Percent) | Sch Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 65 | 14 | 74 | 84 | 97 | 112 | 131 | 155 | 16 |
| Professional Services | 25 | 16 | 29 | 34 | 40 | 46 | 53 | 60 | 16 |
| Total (Rounded) | 90 | 14 | 105 | 120 | 135 | 160 | 185 | 215 | 16 |


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EXHIBIT A-13

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Spain

| Subsector | 1989 (Ptas Millions) | 1989-1990 Growth (Percent) | Ptas Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 1,500 | 13 | 1,700 | 1,940 | 2,240 | 2,600 | 3,020 | 3,540 | 16 |
| Professional Services | 1,400 | 21 | 1,700 | 2,040 | 2,400 | 2,800 | 3,250 | 3,700 | 17 |
| Total (Rounded) | 2,900 | 17 | 3,400 | 3,980 | 4,640 | 5,400 | 6,270 | 7,240 | 16 |

EXHIBIT A-14

## Systems Operations Market Forecast by Subsector, 1990-1995 (in Local Currency) Rest of Europe

| Subsector | 1989 ($ Millions) | 1989-1990 Growth (Percent) | $ Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 5 | 20 | 6 | 7 | 8 | 10 | 13 | 16 | 22 |
| Professional Services | 1 | 0 | 1 | 2 | 2 | 3 | 3 | 4 | 32 |
| Total | 6 | 17 | 7 | 9 | 10 | 13 | 16 | 20 | 23 |


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# Detailed Forecast Data, ECUs

EXHIBIT B-1

**Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs)**
**France**

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 182 | 16 | 211 | 247 | 290 | 341 | 400 | 477 | 18 |
| Professional Services | 44 | 27 | 55 | 70 | 87 | 108 | 134 | 163 | 24 |
| Total | 226 | 18 | 266 | 317 | 377 | 449 | 534 | 640 | 19 |

EXHIBIT B-2

**Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs)**
**Germany**

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 49 | 10 | 54 | 61 | 71 | 80 | 95 | 112 | 16 |
| Professional Services | 10 | 25 | 12 | 16 | 20 | 25 | 30 | 37 | 25 |
| Total | 59 | 13 | 66 | 77 | 91 | 105 | 125 | 149 | 18 |


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EXHIBIT B-3

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) United Kingdom

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 182 | 26 | 230 | 284 | 351 | 432 | 527 | 635 | 23 |
| Professional Services | 20 | 27 | 26 | 32 | 41 | 50 | 61 | 74 | 24 |
| Total | 202 | 26 | 256 | 316 | 392 | 482 | 588 | 709 | 23 |

EXHIBIT B-4

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Italy

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 87 | 15 | 100 | 120 | 143 | 170 | 206 | 253 | 20 |
| Professional Services | 27 | 25 | 33 | 42 | 53 | 67 | 83 | 103 | 25 |
| Total | 114 | 18 | 133 | 162 | 196 | 237 | 289 | 356 | 22 |

EXHIBIT B-5

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Sweden

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 24 | 14 | 28 | 32 | 36 | 43 | 50 | 59 | 16 |
| Professional Services | 3 | 15 | 3 | 4 | 4 | 5 | 6 | 7 | 17 |
| Total | 27 | 14 | 31 | 36 | 40 | 48 | 56 | 66 | 16 |


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EXHIBIT B-6

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Denmark

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 8 | 17 | 9 | 11 | 12 | 14 | 17 | 19 | 17 |
| Professional Services | 2 | 20 | 2 | 3 | 3 | 4 | 4 | 5 | 17 |
| Total | 10 | 17 | 11 | 14 | 15 | 18 | 21 | 24 | 17 |

EXHIBIT B-7

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Norway

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 7 | 18 | 8 | 10 | 12 | 14 | 16 | 18 | 17 |
| Professional Services | 2 | 20 | 2 | 3 | 3 | 3 | 4 | 4 | 14 |
| Total | 9 | 19 | 10 | 13 | 15 | 17 | 20 | 22 | 16 |

EXHIBIT B-8

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Finland

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 17 | 19 | 20 | 23 | 27 | 32 | 38 | 46 | 19 |
| Professional Services | 3 | 20 | 4 | 5 | 6 | 7 | 8 | 9 | 20 |
| Total | 20 | 19 | 24 | 28 | 33 | 39 | 46 | 55 | 19 |


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EXHIBIT B-9

**Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs)**
**The Netherlands**

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 30 | 17 | 36 | 42 | 49 | 58 | 70 | 85 | 19 |
| Professional Services | 11 | 24 | 13 | 17 | 20 | 25 | 30 | 37 | 22 |
| Total | 41 | 19 | 49 | 59 | 69 | 83 | 100 | 122 | 20 |

EXHIBIT B-10

**Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs)**
**Belgium**

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 21 | 16 | 25 | 29 | 34 | 40 | 48 | 57 | 18 |
| Professional Services | 3 | 19 | 4 | 4 | 5 | 6 | 7 | 8 | 18 |
| Total | 24 | 16 | 29 | 33 | 39 | 46 | 55 | 65 | 18 |

EXHIBIT B-11

**Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs)**
**Switzerland**

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 11 | 20 | 13 | 16 | 19 | 22 | 26 | 31 | 18 |
| Professional Services | 1 | 50 | 2 | 2 | 3 | 3 | 4 | 4 | 22 |
| Total | 12 | 23 | 15 | 18 | 22 | 25 | 30 | 35 | 18 |


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EXHIBIT B-12

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Austria

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 5 | 14 | 5 | 6 | 7 | 8 | 9 | 11 | 16 |
| Professional Services | 2 | 16 | 2 | 2 | 3 | 3 | 4 | 4 | 16 |
| Total | 7 | 14 | 7 | 8 | 10 | 11 | 13 | 15 | 16 |

EXHIBIT B-13

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Spain

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 12 | 13 | 13 | 15 | 17 | 20 | 23 | 27 | 16 |
| Professional Services | 11 | 21 | 13 | 16 | 19 | 22 | 25 | 29 | 17 |
| Total | 23 | 17 | 26 | 31 | 36 | 42 | 48 | 56 | 16 |

EXHIBIT B-14

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Rest of Europe

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 4 | 20 | 5 | 6 | 7 | 8 | 11 | 13 | 22 |
| Professional Services | 1 | 0 | 1 | 2 | 2 | 2 | 2 | 3 | 32 |
| Total | 5 | 17 | 6 | 8 | 9 | 10 | 13 | 16 | 23 |


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EXHIBIT B-15

## Systems Operations Market Forecast by Subsector, 1990-1995 (in ECUs) Western Europe

| Subsector | 1989 (ECU Millions) | 1989-1990 Growth (Percent) | ECU Millions | | | | | | 1990-1995 CAGR (Percent) |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | |
| Processing Services | 638 | 18 | 756 | 900 | 1,075 | 1,282 | 1,536 | 1,844 | 20 |
| Professional Services | 138 | 25 | 173 | 216 | 269 | 331 | 403 | 489 | 23 |
| Total | 776 | 20 | 929 | 1,116 | 1,344 | 1,613 | 1,939 | 2,333 | 20 |


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# Forecast Reconciliation, 1989-1990

Exhibit C-1 shows the changes made in this year's forecast in comparison to the previous year's. The principal reasons for these changes are:

- The general rise of European currencies against the U.S. dollar accounts for some 3.3% of the increase
- A reevaluation of the market size, resulting from the research carried out for this report. This has affected the processing subsector more significantly than the professional services subsector.


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EXHIBIT C-1

## Systems Operations Reconciliation of Market Forecast
## Western Europe

| Subsector | 1989 Market | | | 1994 Market | | | 1989-1994 CAGR Forecast in 1989 | 1990-1995 CAGR Forecast in 1990 |
|---|---|---|---|---|---|---|---|---|
| | 1989 Report $ M | 1990 Report $ M | Variance (Percent) | 1989 Report $ M | 1990 Report $ M | Variance (Percent) | | |
| Processing Services | 640 | 725 | +13 | 1,570 | 1,770 | +13 | 20 | 20 |
| Professional Services | 145 | 155 | +7 | 430 | 455 | +6 | 24 | 23 |


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